

ANALYTICAL REPORT

ROCKWELL INTERNATIONAL
NORTH AMERICAN SPACE OPERATIONS
P.O. BOX 464
GOLDEN, COLORADO 80401

GENERAL LABORATORY
BUILDING 881

DISTRIBUTION:

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File

LAB NUMBER: E87-3929 Partial
DATE: 11-16-87
ACCOUNT NO: 986070-00

APPROVED: 
J. D. Grooms

SAMPLE DESCRIPTION

Third Quarter Surface Water Mound, Pad and Trench: SW-27, 28, 50, 51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 62, 63, and 64.

ANALYSIS RESULTS

The following is data for 3rd quarter surface water 1987. This is a partial report. Analysis data for metals by AA will follow.

The parameters analyzed for each sample are listed in the attached data tables. The sample ID along with the date sampled are listed in the tables as Sample ID/date Sampled (i.e., 4-87/5-20-87).

Analysis Qualifiers

The required detection limit (RDL) is listed for each parameter. When a sample parameter is reported below the RDL it appears in the table as a less than symbol (<). When the stated uncertainty is greater than the actual value, the analysis represents a non-minimum detectable activity value meaning the value is essentially zero. The stated uncertainties were established through the propagation of errors associated with the analysis, and are stated at the two sigma confidence interval.

The parameters of Pu-239, Am-241, U-234, 235, 238, Gross Alpha and Gross Beta do not have RDL values. The data reported for Sr-90 is actually the sum of Sr-89 and Sr-90. The half life for Sr-89 is 50.5 days, therefore, the probability of Sr-89 being present is unlikely but should still be considered since separate analysis were not performed.

Symbols

* indicates that the sample has a pH below the required pH to analyze for carbonate. Therefore, alkalinity as carbonate is not analyzed for and is not reported.

@ indicates that the sample was not analyzed for this parameter as per analysis request.

© indicates that the parameter result for the sample is nto available.

** indicates that the sample was lost before of during analysis parameters are not reportable.

indicates that the sample may have been over-titrated and not enough sample was available for a rerun.

“REVIEWED FOR CLASSIFICATION
By 
Date 7/11/90

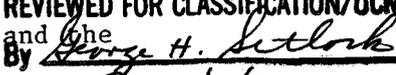
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By 
Date 7/3/90

TABLE 1

Analysis by Water Lab and Special Chemical Analysis

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-27/7-22-87 | SW-28/7-22-87 | SW-50/7-21-87 |
|--|------------|---------------|---------------|---------------|
| Cl ⁻ (mg/L) | 1.0 | 34.0 | 35.0 | 59.0 |
| NO ₃ ⁻ as N (mg/L) | 0.20 | 3.2 | < | 4.15 |
| SO ₄ ⁼ (mg/L) | 1.0 | 69.3 | 60.0 | 21.1 |
| Total Dissolved Solids (mg/L) | 1 | 426 | 402 | 510 |
| Alkalinity as: HCO ₃ ⁻ (mg/L) | 1.0 | 237 | 237 | 261 |
| Suspended Solids (mg/L) | 1 | < | 8 | 7 |
| CN ⁻ (ug/ml) | 1.0 | < | < | < |
| Oil & Grease (mg/L) | 5.0 | < | < | < |
| Cr ⁺⁶ (mg/L) | 1.0 | < | < | < |

Analysis by Radiochemistry

| | | | | |
|---------------------|-----------------------|-------------------------------|-------------------------------|-------------------------------|
| Gross Alpha (pCi/L) | N/A | 10 ± 0 | 2 ± 17 | 26 ± 14 |
| Gross Beta (pCi/L) | N/A | 61 ± 3 | 80 ± 19 | 19 ± 49 |
| U-234 (pCi/L) | N/A | (7.9 ± 9.2)X 10 ⁻¹ | (1.3 ± 7.9)X 10 ⁻¹ | 1.3 ± 1.5 |
| U-235 (pCi/L) | N/A | (1.7 ± 5.2)X 10 ⁻¹ | (0.0 ± 5.7)X 10 ⁻¹ | (2.2 ± 5.7)X 10 ⁻¹ |
| U-238 (pCi/L) | N/A | 5.8 ± 1.7 | 1.6 ± 1.3 | 0.6 ± 1.1 |
| Sr-90 (pCi/L) | 0.6 | <1.0(MDA) | 1.4 | <1.0(MDA) |
| Pu-239 (pCi/L) | N/A | 0.0 ± 1.0 | 0.1 ± 1.2 | (5.5 ± 0.7)X 10 ¹ |
| Am-241 (pCi/L) | N/A | 0.0 ± 1.6 | 0.0 ± 4.1 | (0.0 ± 2.7)X 10 ¹ |
| Tritium (pCi/L) | 1.1 X 10 ² | < | < | < |
| Cs-137 (pCi/L) | 0.3 | <1(MDA) | <1(MDA) | <1(MDA) |

TABLE 1

Analysis by Water Lab and Special Chemical Analysis

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-51/7-21-87 | SW-52/7-21-87 | SW-53/7-21-87 |
|--|------------|---------------|---------------|---------------|
| Cl ⁻ (mg/L) | 1.0 | 16.9 | 25.5 | 71.5 |
| NO ₃ ⁻ as N (mg/L) | 0.20 | 4.90 | < | < |
| SO ₄ ⁼ (mg/L) | 1.0 | 61.0 | 73.3 | 20.3 |
| Total Dissolved Solids (mg/L) | 1 | 332 | 461 | 666 |
| Alkalinity as: HCO ₃ ⁻ (mg/L) | 1.0 | 436 | 297 | 483 |
| Suspended Solids (mg/L) | 1 | 3 | 2 | 2 |
| CN ⁻ (ug/ml) | 1.0 | < | < | < |
| Oil & Grease (mg/L) | 5.0 | < | < | < |
| Cr ⁺⁶ (mg/L) | 1.0 | < | < | < |

Analysis by Radiochemistry

| | | | | |
|---------------------|-----------------------|-------------------------------|-------------------------------|-------------------------------|
| Gross Alpha (pCi/L) | N/A | 58 ± 4 | 114 ± 10 | 203 ± 48 |
| Gross Beta (pCi/L) | N/A | 28 ± 8 | 46 ± 15 | 42 ± 55 |
| U-234 (pCi/L) | N/A | 1.2 ± 1.3 | 1.0 ± 1.4 | 1.4 ± 1.1 |
| U-235 (pCi/L) | N/A | (3.0 ± 9.1)X 10 ⁻¹ | (1.7 ± 6.6)X 10 ⁻¹ | (0.0 ± 5.7)X 10 ⁻¹ |
| U-238 (pCi/L) | N/A | 1.7 ± 1.1 | 0.6 ± 1.8 | 2.4 ± 1.3 |
| Sr-90 (pCi/L) | 0.6 | <1(MDA) | <1(MDA) | 3.5 |
| Pu-239 (pCi/L) | N/A | (1.3 ± 0.3)X 10 ¹ | 5.4 ± 1.5 | (2.5 ± 0.5)X 10 ¹ |
| Am-241 (pCi/L) | N/A | (0.0 ± 1.1)X 10 ¹ | 0.2 ± 1.5 | 0.0 ± 1.9 |
| Tritium (pCi/L) | 1.1 X 10 ² | < | < | < |
| Cs-137 (pCi/L) | 0.3 | <1.0(MDA) | <1.0(MDA) | <1.0(MDA) |

TABLE 1

Analysis by Water Lab and Special Chemical Analysis

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-55/7-21-87 | SW-56/7-21-87 | SW-57/7-21-87 |
|--|------------|---------------|---------------|---------------|
| Cl ⁻ (mg/L) | 1.0 | 34.0 | 54.0 | 24.0 |
| NO ₃ ⁻ as N (mg/L) | 0.20 | 0.24 | 4.10 | 1.16 |
| SO ₄ ⁼ (mg/L) | 1.0 | 37.2 | 71.5 | <1.0 |
| Total Dissolved Solids (mg/L) | 1 | 452 | 577 | 522 |
| Alkalinity as: HCO ₃ ⁻ (mg/L) | 1.0 | 326 | 346 | 436 |
| Suspended Solids (mg/L) | 1 | 2 | 4 | 5 |
| CN ⁻ (ug/ml) | 1.0 | < | < | < |
| Oil & Grease (mg/L) | 5.0 | < | < | 12.3 |
| Cr ⁺⁶ (mg/L) | 1.0 | < | < | < |

Analysis by Radiochemistry

| | | | | |
|---------------------|-----------------------|-------------------------------|-------------------------------|-------------------------------|
| Gross Alpha (pCi/L) | N/A | 3 ± 12 | 8 ± 10 | 259 ± 8 |
| Gross Beta (pCi/L) | N/A | 42 ± 28 | 18 ± 16 | 63 ± 20 |
| U-234 (pCi/L) | N/A | 0.7 ± 1.3 | (0.0 ± 6.5)X 10 ⁻¹ | 2.8 ± 1.5 |
| U-235 (pCi/L) | N/A | (0.0 ± 2.6)X 10 ⁻¹ | (1.9 ± 5.3)X 10 ⁻¹ | (5.7 ± 6.8)X 10 ⁻¹ |
| U-238 (pCi/L) | N/A | 2.7 ± 1.7 | 3.2 ± 1.3 | 0.9 ± 1.0 |
| Sr-90 (pCi/L) | 0.6 | 2.5 | 3.6 | <1.0(MDA) |
| Pu-239 (pCi/L) | N/A | 3.2 ± 1.7 | (0.0 ± 8.9)X 10 ⁻¹ | (5.4 ± 0.7)X 10 ¹ |
| Am-241 (pCi/L) | N/A | 0.0 ± 3.2 | 0.0 ± 2.0 | 0.0 ± 2.0 |
| Tritium (pCi/L) | 1.1 X 10 ² | < | < | < |
| Cs-137 (pCi/L) | 0.3 | <1.0(MDA) | <1.0(MDA) | <1.0(MDA) |

TABLE 1

Analysis by Water Lab and Special Chemical Analysis

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-58/7-21-87 | SW-59/7-21-87 | SW-60/7-21-87 |
|--|------------|---------------|---------------|---------------|
| Cl ⁻ (mg/L) | 1.0 | 32.0 | 39.0 | 44.0 |
| NO ₃ ⁻ as N (mg/L) | 0.20 | 1.42 | 3.80 | 4.5 |
| SO ₄ ⁼ (mg/L) | 1.0 | 22.0 | 24.5 | 45.0 |
| Total Dissolved Solids (mg/L) | 1 | 375 | 524 | 482 |
| Alkalinity as: HCO ₃ ⁻ (mg/L) | 1.0 | 270 | 335 | 290 |
| Suspended Solids (mg/L) | 1 | 3 | 8 | 1 |
| CN ⁻ (ug/ml) | 1.0 | < | < | #1.0 |
| Oil & Grease (mg/L) | 5.0 | ** | < | < |
| Cr ⁺⁶ (mg/L) | 1.0 | < | < | < |

Analysis by Radiochemistry

| | | | | |
|---------------------|-----------------------|-------------------------------|-------------------------------|-------------------------------|
| Gross Alpha (pCi/L) | N/A | 24 ± 21 | 26 ± 6 | 8 ± 18 |
| Gross Beta (pCi/L) | N/A | 11 ± 32 | 28 ± 6 | 33 ± 24 |
| U-234 (pCi/L) | N/A | 1.0 ± 0.8 | 3.1 ± 1.2 | 1.7 ± 1.0 |
| U-235 (pCi/L) | N/A | (0.8 ± 3.6)X 10 ⁻¹ | (0.1 ± 4.5)X 10 ⁻¹ | (3.7 ± 4.4)X 10 ⁻¹ |
| U-238 (pCi/L) | N/A | 1.3 ± 0.8 | 5.6 ± 1.4 | 2.2 ± 0.8 |
| Sr-90 (pCi/L) | 0.6 | <1.0(MDA) | 1.0 | <1.0(MDA) |
| Pu-239 (pCi/L) | N/A | 8.9 ± 2.1 | (0.0 ± 9.3)X 10 ⁻¹ | 0.0 ± 1.1 |
| Am-241 (pCi/L) | N/A | 0.3 ± 1.4 | 0.03 ± 1.4 | 0.0 ± 1.2 |
| Tritium (pCi/L) | 1.1 X 10 ² | < | 2.1 X 10 ² | < |
| Cs-137 (pCi/L) | 0.3 | <1.0(MDA) | <1.0(MDA) | <1.0(MDA) |

TABLE 1

Analysis by Water Lab and Special Chemical Analysis

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-61/7-22-87 | SW-62/7-22-87 | SW-63/7-24-87 |
|--|------------|---------------|---------------|---------------|
| Cl ⁻ (mg/L) | 1.0 | 12.0 | 44.0 | 50.5 |
| NO ₃ ⁻ as N (mg/L) | 0.20 | 0.25 | < | < |
| SO ₄ ⁼ (mg/L) | 1.0 | 31.1 | 132 | 197 |
| Total Dissolved Solids (mg/L) | 1 | 156 | 625 | 675 |
| Alkalinity as: HCO ₃ ⁻ (mg/L) | 1.0 | 83.3 | 346 | 361 |
| Suspended Solids (mg/L) | 1 | 8 | 7 | 17 |
| CN ⁻ (ug/ml) | 1.0 | < | < | < |
| Oil & Grease (mg/L) | 5.0 | < | < | < |
| Cr ⁺⁶ (mg/L) | 1.0 | < | < | < |

Analysis by Radiochemistry

| | | | | |
|---------------------|-----------------------|-------------------------------|-------------|---|
| Gross Alpha (pCi/L) | N/A | 17 ± 12 | 100 ± 20 | @ |
| Gross Beta (pCi/L) | N/A | 41 ± 14 | 100 ± 13 | @ |
| U-234 (pCi/L) | N/A | (8.5 ± 8.9)X 10 ⁻¹ | (3.2 ± 2.9) | @ |
| U-235 (pCi/L) | N/A | (2.1 ± 4.0)X 10 ⁻¹ | 0.0 ± 2.1 | @ |
| U-238 (pCi/L) | N/A | (9.3 ± 7.5)X 10 ⁻¹ | 5.1 ± 3.0 | @ |
| Sr-90 (pCi/L) | 0.6 | <1.0(MDA) | <1.0(MDA) | @ |
| Pu-239 (pCi/L) | N/A | (0.0 ± 8.2)X 10 ⁻¹ | 1.3 ± 0.9 | @ |
| Am-241 (pCi/L) | N/A | 0.0 ± 1.2 | 0.0 ± 1.3 | @ |
| Tritium (pCi/L) | 1.1 X 10 ² | < | < | @ |
| Cs-137 (pCi/L) | 0.3 | <1.0(MDA) | 1.9 | @ |

TABLE 1

Analysis by Water Lab and Special Chemical Analysis

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-64/7-22-87 |
|--|------------|---------------|
| Cl ⁻ (mg/L) | 1.0 | 46.5 |
| NO ₃ ⁻ as N (mg/L) | 0.20 | < |
| SO ₄ ⁼ (mg/L) | 1.0 | 83.0 |
| Total Dissolved Solids (mg/L) | 1 | 716 |
| Alkalinity as: HCO ₃ ⁻ (mg/L) | 1.0 | 404 |
| Suspended Solids (mg/L) | 1 | 13 |
| CN ⁻ (ug/ml) | 1.0 | < |
| Oil & Grease (mg/L) | 5.0 | < |
| Cr ⁺⁶ (mg/L) | 1.0 | < |

Analysis by Radiochemistry

| | | |
|---------------------|-----------------------|-------------------------------|
| Gross Alpha (pCi/L) | N/A | 34 ± 7 |
| Gross Beta (pCi/L) | N/A | 93 ± 16 |
| U-234 (pCi/L) | N/A | 6.3 ± 1.6 |
| U-235 (pCi/L) | N/A | (0.0 ± 3.8)X 10 ⁻¹ |
| U-238 (pCi/L) | N/A | 4.9 ± 1.3 |
| Sr-90 (pCi/L) | 0.6 | 1.5 |
| Pu-239 (pCi/L) | N/A | 0.1 ± 1.2 |
| Am-241 (pCi/L) | N/A | 0.01 ± 1.3 |
| Tritium (pCi/L) | 1.1 X 10 ² | < |
| Cs-137 (pCi/L) | 0.3 | <1.0(MDA) |

TABLE 2

Volatiles by GCMS

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-27/7-22-87 | SW-28/7-22-87 | SW-50/7-21-87 |
|------------------------------------|------------|---------------|---------------|---------------|
| Chloroform (ppb) | 5 | < | < | 84 |
| Carbon Tetrachloride (ppb) | 5 | < | < | 1,005 |
| 1,1-Dichloroethene (ppb) | 5 | < | < | 140 |
| 1,2-Dichloroethane (ppb) | 5 | < | < | < |
| 1,1,1-Trichloroethane (ppb) | 5 | < | < | < |
| 1,1,2-Trichloroethane (ppb) | 5 | < | < | < |
| Trichlorethene (ppb) | 5 | < | < | 40 |
| Tetrachloroethene (ppb) | 5 | < | < | 65 |
| Trans- (ppb) 1,2-Dichloroethene | 5 | < | < | < |

Volatiles by GCMS

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-51/7-21-87 | SW-52/7-21-87 | SW-53/7-21-87 |
|------------------------------------|------------|---------------|---------------|---------------|
| Chloroform (ppb) | 5 | < | < | < |
| Carbon Tetrachloride (ppb) | 5 | 282 | < | < |
| 1,1-Dichloroethene (ppb) | 5 | 101 | 73 | < |
| 1,2-Dichloroethane (ppb) | 5 | < | < | < |
| 1,1,1-Trichloroethane (ppb) | 5 | < | < | < |
| 1,1,2-Trichloroethane (ppb) | 5 | < | < | < |
| Trichlorethene (ppb) | 5 | 17 | < | < |
| Tetrachloroethene (ppb) | 5 | 44 | < | < |
| Trans- (ppb) 1,2-Dichloroethene | 5 | < | < | < |

TABLE 2

Volatiles by GCMS

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-55/7-21-87 | SW-56/7-21-87 | SW-57/7-21-87 |
|------------------------------------|------------|---------------|---------------|---------------|
| Chloroform (ppb) | 5 | < | < | < |
| Carbon Tetrachloride (ppb) | 5 | < | < | < |
| 1,1-Dichloroethene (ppb) | 5 | 50 | 143 | 48 |
| 1,2-Dichloroethane (ppb) | 5 | < | < | < |
| 1,1,1-Trichloroethane (ppb) | 5 | < | < | < |
| 1,1,2-Trichloroethane (ppb) | 5 | < | < | < |
| Trichlorethene (ppb) | 5 | < | 50 | < |
| Tetrachloroethene (ppb) | 5 | < | 72 | < |
| Trans- (ppb) 1,2-Dichloroethene | 5 | < | < | < |

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-58/7-21-87 | SW-59/7-21-87 | SW-60/7-21-87 |
|------------------------------------|------------|---------------|---------------|---------------|
| Chloroform (ppb) | 5 | < | 40 | < |
| Carbon Tetrachloride (ppb) | 5 | < | 605 | 173 |
| 1,1-Dichloroethene (ppb) | 5 | < | 133 | < |
| 1,2-Dichloroethane (ppb) | 5 | < | < | < |
| 1,1,1-Trichloroethane (ppb) | 5 | < | < | < |
| 1,1,2-Trichloroethane (ppb) | 5 | < | < | < |
| Trichlorethene (ppb) | 5 | < | 62 | < |
| Tetrachloroethene (ppb) | 5 | < | 60 | < |
| Trans- (ppb) 1,2-Dichloroethene | 5 | < | < | < |

TABLE 2

Volatiles by GCMS

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-61/7-22-87 | SW-62/7-22-87 | SW-63/7-24-87 |
|------------------------------------|------------|---------------|---------------|---------------|
| Chloroform (ppb) | 5 | < | < | < |
| Carbon Tetrachloride (ppb) | 5 | < | < | < |
| 1,1-Dichloroethene (ppb) | 5 | < | < | < |
| 1,2-Dichloroethane (ppb) | 5 | < | < | < |
| 1,1,1-Trichloroethane (ppb) | 5 | 33 | < | < |
| 1,1,2-Trichloroethane (ppb) | 5 | < | < | < |
| Trichlorethene (ppb) | 5 | 6 | < | < |
| Tetrachloroethene (ppb) | 5 | < | < | < |
| Trans- (ppb) 1,2-Dichloroethene | 5 | < | < | < |

Volatiles by GCMS

| <u>Analy//Samp.ID-date</u> | <u>RDL</u> | SW-64/7-22-87 |
|------------------------------------|------------|---------------|
| Chloroform (ppb) | 5 | < |
| Carbon Tetrachloride (ppb) | 5 | < |
| 1,1-Dichloroethene (ppb) | 5 | < |
| 1,2-Dichloroethane (ppb) | 5 | < |
| 1,1,1-Trichloroethane (ppb) | 5 | < |
| 1,1,2-Trichloroethane (ppb) | 5 | < |
| Trichlorethene (ppb) | 5 | 20 |
| Tetrachloroethene (ppb) | 5 | < |
| Trans- (ppb) 1,2-Dichloroethene | 5 | < |

TABLE 3

Dissolved Metal by ICP (all units are ug/ml)

| <u>Analy//Samp.ID</u> | <u>RDL</u> | SW-27/7-22-87 | SW-28/7-22-87 | SW-50/7-21-87 | SW-51/7-21-87 |
|-----------------------|------------|---------------|---------------|---------------|---------------|
| Aluminum | 0.2 | < | < | < | < |
| Barium | 0.2 | < | < | 0.26 | 0.21 |
| Calcium | 5.0 | 78.6 | 66.3 | 147 | 103 |
| Chromium | 0.01 | < | 0.03 | < | < |
| Cobalt | 0.05 | < | < | < | < |
| Copper | 0.025 | < | 0.027 | < | < |
| Iron | 0.1 | < | 0.23 | < | < |
| Magnesium | 5.0 | 16.1 | 15.7 | 9.6 | 7.9 |
| Manganese | 0.015 | 0.153 | 0.144 | 0.495 | < |
| Nickel | 0.04 | < | 0.82 | < | < |
| Silver | 0.01 | < | < | < | < |
| Sodium | 5.0 | 49.8 | 55.0 | 9.5 | 7.8 |
| Vanadium | 0.05 | < | < | < | < |
| Zinc | 0.02 | 0.04 | < | < | < |
| Molybdenum | 0.04 | < | < | < | < |
| Strontium | 0.02 | 0.52 | 0.43 | 0.43 | 0.40 |

TABLE 3

Dissolved Metal by ICP (all units are ug/ml)

| <u>Analy//Samp.ID</u> | <u>RDL</u> | SW-52/7-21-87 | SW-53/7-21-87 | SW-55/7-21-87 | SW-56/7-21-87 |
|-----------------------|------------|---------------|---------------|---------------|---------------|
| Aluminum | 0.2 | < | < | < | < |
| Barium | 0.2 | < | < | 0.24 | 0.22 |
| Calcium | 5.0 | 110 | 80.0 | 126 | 137 |
| Chromium | 0.01 | < | < | < | < |
| Cobalt | 0.05 | < | < | < | < |
| Copper | 0.025 | < | < | < | < |
| Iron | 0.1 | < | < | < | < |
| Magnesium | 5.0 | 13.7 | 26.4 | 19.7 | 21.1 |
| Manganese | 0.015 | 0.296 | 0.087 | 0.022 | 0.227 |
| Nickel | 0.04 | < | < | < | < |
| Silver | 0.01 | < | < | < | < |
| Sodium | 5.0 | 48.0 | 113 | 35.2 | 60.5 |
| Vanadium | 0.05 | < | < | < | < |
| Zinc | 0.02 | < | < | 0.14 | 0.27 |
| Molybdenum | 0.04 | < | < | < | < |
| Strontium | 0.02 | 0.49 | 0.69 | 0.73 | 0.67 |

TABLE 3

Dissolved Metal by ICP (all units are ug/ml)

| <u>Analy//Samp.ID</u> | <u>RDL</u> | SW-57/7-21-87 | SW-58/7-21-87 | SW-59/7-21-87 | SW-60/7-21-87 |
|-----------------------|------------|---------------|---------------|---------------|---------------|
| Aluminum | 0.2 | < | < | < | < |
| Barium | 0.2 | 0.6 | < | < | < |
| Calcium | 5.0 | 156 | 113 | 122 | 114 |
| Chromium | 0.01 | < | < | < | < |
| Cobalt | 0.05 | < | < | < | < |
| Copper | 0.025 | < | < | < | < |
| Iron | 0.1 | < | < | < | < |
| Magnesium | 5.0 | 21.9 | 13.8 | 24.4 | 17.2 |
| Manganese | 0.015 | 0.381 | 0.031 | < | < |
| Nickel | 0.04 | < | < | < | < |
| Silver | 0.01 | < | < | < | < |
| Sodium | 5.0 | 20.7 | 11.6 | 38.2 | 36.8 |
| Vanadium | 0.05 | < | < | < | < |
| Zinc | 0.02 | < | < | 0.31 | 0.59 |
| Molybdenum | 0.04 | < | < | < | < |
| Strontium | 0.02 | 0.79 | 0.59 | 0.73 | 0.58 |

TABLE 3

Dissolved Metal by ICP (all units are ug/ml)

| <u>Analy//Samp.ID</u> | <u>RDL</u> | SW-61/7-22-87 | SW-62/7-22-87 | SW-63/7-24-87 | SW-64/7-22-87 |
|-----------------------|------------|---------------|---------------|---------------|---------------|
| Aluminum | 0.2 | < | < | < | < |
| Barium | 0.2 | < | < | < | < |
| Calcium | 5.0 | 30.1 | 67.9 | 112 | 45.8 |
| Chromium | 0.01 | < | < | < | < |
| Cobalt | 0.05 | < | < | < | < |
| Copper | 0.025 | < | < | < | < |
| Iron | 0.1 | 0.18 | < | < | < |
| Magnesium | 5.0 | < | 29.6 | 34.0 | 54.2 |
| Manganese | 0.015 | 0.047 | 0.016 | 0.393 | < |
| Nickel | 0.04 | < | < | < | < |
| Silver | 0.01 | < | < | < | < |
| Sodium | 5.0 | 17.9 | 99.4 | 110 | 103 |
| Vanadium | 0.05 | < | < | < | < |
| Zinc | 0.02 | 0.05 | < | 0.03 | < |
| Molybdenum | 0.04 | < | < | < | < |
| Strontium | 0.02 | < | 0.97 | 1.07 | 1.10 |